Notes on a tour of Inspection made by Mr. V. P. Madhava Rao, Plague Commissioner in Mysore and Surgeon Lt. Col. P. H. Benson, Senior Surgeon and Sanitary Commissioner with the Government of Mysore, who left Bangalore on the 25th March 1898 travelled through Guntakal, Bellary, Hospet, Gadag and Dharwar and returned *via* Hubli and Harihar arriving at Bangalore on the afternoon of the 30th March 1898.

Friday, March 25th. Saturday, 26th.

Leaving Bangalore at 8-30 P. M., Guntakal was reached at 6-30 A. M., the next day, where we found Surgeon-Major Hakim, District Medical and Sanitary Officer, Anantapur District, on the platform who informed us that he was in charge of the Plague preventive measures enforced at Guntakal where all passengers from an infected area are medically examined and such as are found to be sick or with suspicious symptoms are detained, for which purpose segregation sheds to accommodate some 12 persons had been erected.

We saw the examination of passengers from Bellary which was very similar to our own.

Surgeon Major Hakim explained that a large observation camp was being erected at a cost of some Rs. 20,000 on the bank of the Tungabhadra which forms the boundary between the Madras Presidency and the Nizam's Territory where plague is prevailing, consequently the preventive measures at Guntakal were confined to Medical inspection. The names of passengers proceeding from an infected area to places in the Madras Presidency with their place of destination are also noted, but this precaution is not extended to passengers travelling into Mysore. It may be noted here that Guntakal is the junction between the Southern Mahratta Railway and the Bangalore-Hindupur branch where passengers from Bombay change for Bangalore and Mysore and is therefore, as far as the Mysore Province is concerned, an important place. If the inspection of arrivals from infected areas is carefully carried out there is but little fear of plague being imported into Bangalore through this route as they are again inspected at Yesvantapur and those who are sick transferred to the observation shed whilst others are kept under medical observation for 10 days.

The Mysore Territory commences at Dodkurgode and the only danger to be apprehended is through a passenger alighting at one of the intermediate stations between the frontier station and Yesvantapur.

To minimize this danger the system which is in vogue on the Harihar-Bangalore branch should be adopted, *viz.* the Medical Inspection of all passengers at Dodkurgode, the detention there of all found to be sick or with suspicious symptoms and the placing of the rest under a police escort as in Harihar whose duty it would be to hand them over to the police at the station where they alight.

As there was nothing further to see we went on to Bellary by the 7-30 train arriving about 9-30 A. M. The Assistant Surgeon Mr. Clarke visited us at the Railway staff quarters and explained to us the nature of Plague preventive measures adopted in that town (Bellary) which consisted of :—

A. Medical inspection of all passengers from Hospet and Guntakal side and detention of all found to be sick.

B. Those from infected areas were submitted to the process of fumigation by means of sulphur fumes—a system of disinfection admittedly practically useless.

In the evening we inspected the Civil Hospital in the compound of which is the segregation shed. It is a well built building about 70 feet in length and divided into four compartments to accommodate males and females, the cost of the building with kitchens, latrines, and sheds for the police being Rs. 500. We left Bellary by the 8-30 P. M. train for Dharwar and were examined at Hospet by Surgeon-Captain Pereira who is in charge of Plague preventive measures at that station. He has a certificated midwife to help him. The inspection was at midnight and passengers were not turned out of the train for the inspection. Hospet is the frontier town of Madras and is in danger of being infected by rail from the Bombay side and now that Plague is prevailing in the Nizam's Territory also by road. Surgeon-Captain Pereira told us that there was a segregation camp some mile or so away which is too far off to be of any real use. We were not impressed by the inspection at Hospet. We were again inspected at Gadag in the Dharwar District, but as it was 4 A. M., we did not see much of it. This is an important station as it is not far from Hubli where Plague is prevailing and it is also in direct rail communication with Hotgi and, is consequently liable to be infected from two sides, *viz.*, Sholapur and Hubli. We were told by the Collector at Dharwar that the measures adopted at Gadag are very efficient; this being the case the Mysore Province is protected at this point.

Sunday, 27th.

We arrived at Dharwar at 9-30 A. M., and proceeded at once to the observation camp in company with Mr. Holland, the District Superintendent of Police. The camp is situated at a very convenient distance from the Railway Station on a rising ground. It consists of 12 huts each capable of accommodating 5 persons. The huts are built of bamboo mat walls with thatch roofing, the pitch of which is a good deal too flat and consequently they are very far from being water-tight. There were some thirty persons in the camp at the time of our visit. The arrangements for bathing, quarantine for 10 days, and disinfection were on the whole satisfactory. Dharwar, the head-quarters of the district situated between

Belgaum and Hubli at both of which places plague prevails, has not up to the present date had a single case. This may be attributed to—

1st. The very careful inspection of all passengers and detention of those who actually come from a plague infected area ;

2ndly. To the supervision system which we were told is working admirably. In addition to the observation camp there is a plague camp on the other side of the railway. It is built on much the same plan as the observation camp with the exception that there are two hospital sheds. At the time of our visit there were no patients.

Leaving Dharwar we next proceeded to Hubli, a town of some 60,000 inhabitants, where plague first appeared in the railway chawls in October 1897, and where it was confined until January 1898, when the first case appeared in the town ; from that date to this there have been only some 12 cases at different intervals, as much as 22 days having elapsed between two cases.

Monday, 28th.

On Monday morning we visited the Health Camp which is situated on either side of the Dharwar road about a mile from Hubli. It is composed of mat huts covered with thatch and is capable of accommodating about 800 persons though at the time of our visit there were not more than 50. The arrangements of the camp were very complete indeed, but it is questionable whether they will be habitable during the monsoon, a serious matter should Plague increase during that season. From there we went into the town and were shown those parts which had been evacuated on account of cases of plague having occurred in them. The roofs of the houses had been removed, many of the beams &c. burnt, the whole presenting a most dismal and depressing sight.

Surgeon-Major Collie showed us the different places where plague had occurred and it was impossible to draw any definite conclusion as to why cases should have appeared in those parts, seeing that they were in some instances widely separated. We next visited the plague camp which is situated on the outskirts of the town. The camp is a complete one providing as it does for those who are actually sick, those who are suspected of plague, and those who have been in contact with plague cases; and has also a convalescent or Quarantine camp. The hospital buildings consisted of two long sheds each capable of accommodating 20 patients. They are built of mud walls and tile roof, are light, airy and well ventilated. Dr. Collie showed us the Plague bacillus under the microscope and pointed out how very necessary it was that a bacteriological examination be made in all cases either of sickness or death. We also saw the death certificate book. Surgeon-Major Collie explained to us the importance of these certificates.

Tuesday, 29th.

In the evening we inspected the disinfection of the clothes and goods of passengers from infected areas. The former are tied up in a gunny bag and placed in a cylinder and there subjected to a pressure of steam at 25 lbs. In a short time the boiler is opened and the clothes which are quite dry are handed back to the owners. These operations are under the supervision of a Commissioned Officer and the total cost per mensem of this system is Rs. 1,500. On Tuesday morning we were shown the method of house supervision, the system which is proposed to be adopted in the City of Bangalore. The whole system is under the charge of Major Applin, assisted by Lieutenant Brown and seems to be working in a satisfactory manner.

We left Hubli Tuesday mid-day arriving Harihar the same afternoon. We inspected the camp that has been erected on the banks of the river which is capable of accommodating 500 people as it stands at present.

Instructions were given to the Amildar to make the roofs of all the buildings water-tight as far as possible, to complete the system of drains, to erect latrines, and huts for the disinfection of passengers, as also a semi-pucka building of two wards as hospital for male and female plague patients.

We decided that it was unnecessary to incur a larger outlay on the camp than was absolutely required until the question was definitely settled whether quarantine was to be established here or not. We witnessed the inspection of passengers by mail train from Hubli, which arrived at mid-night. The inspection though carried out at mid-night was very careful and systematic all passengers being compelled to alight from their carriages.

As far as we could judge, the Sub-Assistant Surgeon and those under him are doing their work in a very efficient manner. We examined the books and returns, &c., ; there are one or two small changes necessary in order to make the checking of them easier.

The number of passengers from the Bombay Presidency has lately increased from a little over 30 to nearly 60.

Wednesday, 30th.

The system started some time back of placing under police escort all passengers arriving at Harihar from an infected area is working very satisfactorily and it insures their alighting at the stations to which they are booked. We left Harihar by the mail train arriving in Bangalore on the evening of the 30th.

It remains now to be considered how far the measures described above can be considered to effectively protect Mysore. It is clear that passengers travelling by rail from the Nizam's Territory or from the Bombay Presidency into the Mysore Province have to pass along the chain of inspection stations formed by Tungabhadra, Gadag, Bellary and Guntakal stations at each of which medical inspection is insisted on and the detention of suspected persons more or less rigorously enforced according as the station is near or far from the area of infection. In addition to this, passengers bound for Bangalore or stations south of Bangalore are again carefully inspected at Yeswantpur and kept for ten days under medical observation after arrival at their place of destination, and if found suspicious are detained for medical observation at the Camp of detention near the Magadi road Chattram, Bangalore.

On this side then the province except as regards the stations lying between the frontier at Dodkurgode and Yeswantpur may be said to be most effectively guarded, and in order to make this protection complete so as to include the said intermediate stations all that is necessary is to introduce from Dodkurgode to Yeswantur a system of inspection and surveillance similar to that in force from Harihar to Yeswantpur which has been fully described above; the very early introduction of this measure seems to us of the utmost importance.

Next, on the other side, as regards passengers from all infected areas travelling through Hubli into the Mysore Province by rail, the rigorous preventive measures in force as described above at Londa, Dharwar, Gadag and Hubli may be said to absolutely protect us from all fear of plague from every place except Hubli itself. It remains therefore to consider how far the system in force at Harihar of medical inspection of all passengers, together with the detention of those reasonably suspected and coupled with the system of escorting all persons from an infected area from that place to their place of destination, is sufficient to protect Mysore against the spread of plague from Hubli. In order however to provide against any contingency, the Camp at Harihar, capable as it stands of housing 500 people, has been ordered to be put in thorough order and readiness, so that it can at any moment be used as a quarantine camp should the introduction of rigorous quarantine be rendered necessary.

When in addition to these measures the Supervision system now being introduced is brought into full working order in Bangalore and Mysore, the province may, as far as the *rail* is concerned, be considered to be as efficiently protected against the introduction of plague as is possible.

The last point for consideration is the possibility of the introduction of the plague *by road*.

Now taking into consideration that on the side of the Bombay Presidency plague is nowhere nearer than 80 miles or at least a four days' journey from our frontier, while on the side of the Nizam's Dominions it is nowhere nearer than 300 miles with a wide strip of Madras Presidency between it and our frontier, and considering that along the said strip of Madras Presidency rigorous preventive measures including the establishment of road inspection stations and the thorough patrol of the Madras Presidency frontier on the Nizam's Dominions' side are in force it will be seen that the likelihood of plague being introduced into our province by road is slight. In order however to reduce it to a minimum on the Dharwar-Shimoga frontier, police outposts have been stationed on the main roads and cart-tracks leading into the province; while at central positions along the frontier, inspection stations with detention sheds in charge of a Medical Officer have been established, the whole line of frontier being placed under the supervision of an Inspector specially deputed for this work.

Again on the Chitaldrug-Dharwar frontier the various fords of the Tungabhadra, which forms the boundary line between the two districts, are carefully guarded, police being stationed at each, and the whole being under the supervision of two Jamadars specially deputed for this work.

Finally on the Chitaldrug-Bellary side, separated though it is by the district of Bellary and Kurnool from the districts of the Nizam's Dominions at present infected, the Chitaldrug Deputy Commissioner and the Police Superintendent have proceeded on a tour of inspection with a view of ascertaining how far the preventive measures adopted in the Madras Presidency effectively guard us on that side from the spread of plague by road from the Nizam's Dominions; and on their return they will submit proposals for the establishment of such road inspection stations along their frontier as they may consider necessary to still further guard the Province.